

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

James & Wells
PO Box 2201
Christchurch
NEW ZEALAND

PCT WRITTEN OPINION (PCT Rule 66)

Applicant's or agent's file reference 42550/x288		Date of mailing (day/month/year) 14 MAR 2005
International Application No. PCT/NZ2003/000279		REPLY DUE within ONE MONTH from the above date of mailing
International Filing Date (day/month/year) 17 December 2003	Priority Date (day/month/year) 17 December 2002	
International Patent Classification (IPC) or both national classification and IPC Int. Cl. ⁷ G01N 22/04, 33/12, G01K 11/06, 13/10, A23B 4/06, 4/07		
Applicant AGRESEARCH LIMITED et al		

1. This written opinion is the **second** drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:..

I	<input checked="" type="checkbox"/>	Basis of the opinion
II	<input type="checkbox"/>	Priority
III	<input type="checkbox"/>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	<input type="checkbox"/>	Lack of unity of invention
V	<input checked="" type="checkbox"/>	Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	<input type="checkbox"/>	Certain documents cited
VII	<input type="checkbox"/>	Certain defects in the international application
VIII	<input checked="" type="checkbox"/>	Certain observations on the international application
3. The **FINAL DATE** by which the international preliminary examination report must be established according to Rule 69.2 is:
17 April 2005
4. The applicant is hereby invited to reply to this opinion.

When?	See the Reply Due date indicated above. However, the Australian Patent Office will not establish the Report before the earlier of (i) a response being filed, or (ii) one month before the Final Date by which the international preliminary examination report must be established. The Report will take into account any response (including amendments) filed before the Report is established. If no response is filed by 1 month before the Final Date , the international preliminary examination report will be established on the basis of this opinion. Applicants wishing to have the benefit of a further opinion (if needed) before the report is established should ensure that a response is filed at least 3 months before the Final Date by which the international preliminary examination report must be established.
How?	By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.
Also	For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6.

Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer RAJEEV DESHMUKH Telephone No. (02) 6283 2145
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I. Basis of the opinion

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed.
- ☒ the description, pages 1-8, 11-16, as originally filed,
pages , filed with the demand,
pages 9-10, received on 2 March 2005 with the letter of 2 March 2005
- ☒ the claims, pages , as originally filed,
pages , as amended under Article 19,
pages , filed with the demand,
pages 17-20, received on 2 March 2005 with the letter of 2 March 2005
- ☒ the drawings, pages 1/4-4/4, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-15, 17-19	YES
	Claims 16	NO
Inventive step (IS)	Claims	YES
	Claims 1-19	NO
Industrial applicability (IA)	Claims 1-19	YES
	Claims	NO

2. Citations and explanations

WO 1998/001747 A1 (REED) 15 January 1998
 Patent Abstracts of Japan, JP 59-176655 A (HITACHI HEATING APPLIANCE CO LTD)
 GB 1114157 A (ASSOCIATED ELECTRICAL INDUSTRIES LIMITED) 15 May 1968
 KUPFER, "Mikrowellenfeuchtmeßgeräte und ihr Einsatz in der Prozeßtechnik", Technische Messen, vol. 61, no. 11, November 1994, pages 409-420
 WO 1991/002966 A1 (COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION) 7 March 1991—see page 16, lines 7-11 ("*a horn antenna for transmission through a sample positioned on a conveyor belt immediately above the transmitter*").
 GB 2297846 A (MMC SPACE SYSTEMS LIMITED) 14 August 1996
 US 5845529 A (MOSHE et al.) 8 December 1998
 US 5871397 A (NELSON et al.) 16 February 1999
 GB 2359630 A (THOMPSON et al.) 29 August 2001—see drawing sheets 1/5, 3/5 showing the antenna horns *in contact with* the product.
 GB 2185311 A (FILTROL CORPORATION) 15 July 1987
 US 4131845 A (PAKULIS) 26 December 1978—see figure 2 where the transmitting and the receiving horns are *in contact with* the chute.
 US 4727311 A (WALKER) 23 February 1988
 DD 203398 A (WEBER et al.) 19 October 1983

NOVELTY (N), CLAIM 16; INVENTIVE STEP (IS) CLAIMS 1-19

Claim 16 is not novel in light of any document above. The cited documents each disclose the prior art discussed on page 2, line 18 to page 3, line 13. These cited documents also suggest the invention as claimed because a person skilled in the art would *inherently* locate the transmitter and the detector so that the detector substantially receives the radiation transmitted through the object. Not to do so would defeat the teachings of each cited document because the detector would then detect extraneous radiation that will interfere with the measurement. This fact is so fundamental that many cited documents do not specifically mention it in the description or mention it only indirectly: for example, WO 1991/02966 states on page 20, lines 10-12 that "the sample container was centrally positioned *immediately above the transmitter horn*". Other documents (e.g. GB 2359630 or US 4131845) schematically show the radiation passing through the object, or the transmitter and the detector being *on opposite sides of and in contact with* the object. The transmitter and the detector are not stated to be positioned by a drive apparatus in the prior art documents. However, such an arrangement would be implicit in the teaching of the prior art because somehow the transmitter, the object, and the detector have to be brought into close proximity if the microwave attenuation by the object is to be determined. This may be done manually (as claimed in claim 13) or by using a machine. In other words, the claims merely define obvious desiderata and require no inventive ingenuity by a skilled person. Therefore these claims do not appear to involve an inventive step.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. The claims are not clear because the scope of the term "*at least substantially*" is vague and indeterminate. The applicant states that it "is a widely recognised and accepted term in patent specifications and would be clearly interpreted within the context of a patent by a skilled addressee". However the applicant has not stated what that interpretation would be, especially in light of the fact that many prior art documents show close proximity between the transmitter and the object. Without a clear definition and exemplification of this term, the claim would be claiming the invention by result—anything that works is claimed and anything that does not work is disclaimed.
2. The claims are not clear because the scope of the term "*adjacent* or in contact with the surface" is vague and indeterminate. The applicant states that the term "is not ambiguous given the nature of the invention nor the interpretive knowledge of the addressee in the field of the invention. The claims state the effect in terms of electromagnetic radiation detection that is required when effecting placement of the detector and the emitter. Configurations failing to meet these requirements would thus be outside the bounds of the claims and thus they are neither vague nor indeterminate". The term "*adjacent*" clearly includes "*not in contact*" because these are used as alternatives. Many prior art documents show the emitter in close proximity with the object. There is no guidance to a skilled person how the claimed "*adjacent*" differs from what is shown in the prior art. Furthermore, in order to practise the invention, a skilled addressee would need to know how close the emitter have to be to practise the invention. This is not clear from the claim (or the description).
3. The description is not clear because it does not describe the invention in a manner such that it may be practised by a person skilled in the art without undue experimentation. For example, it does not disclose how close the transmitter should be to the object, the details of the transmitter (e.g. power, frequency), and in particular does not disclose any example relating the temperature determination to the microwave measurements. Compare, for example, the level of technical detail in WO 1998/001747 and most other cited documents. The applicant states that "the present invention does not seek to protect the fundamental operating principles of temperature determination using microwave measurements, these being well established in the art. The present invention is directed solely to the optimum placement of the emitter and detector during such measurements and as such, such additional technical detail is superfluous". The placement of the emitter close to the surface of the object is an obvious desiderata—in fact so obvious that it is not specifically described in many prior art documents. It is plain that the closer the emitter is to the surface of the object, the less likelihood will there be of extraneous radiation. There is nothing in the description that says something like: in the prior art the emitter horn is placed 10 cm from the surface, but we find that it must be closer than 1 cm where we found a surprising result that would not have been obvious to a skilled addressee.
4. Claim 13 is inconsistent with claim 1. In claim 1 the drive apparatus does the positioning but in claim 13 the positioning is done manually.